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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,570	12/09/2003	Glenn A. Walker	DP-309093	5075

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EXAMINER	
ODOM, CURTIS B	
ART UNIT	**PAPER NUMBER**
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/731,570	WALKER ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 10-15* is/are rejected.

7)☒ Claim(s) *6-9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "the," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it contains more than 150 words (see above). Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claim 6 is objected to because of the following informalities: The phrase "the a first communication channel" is suggested to be changed to "a first communication channel". Claim 9 is objected to because of the following informalities: The phrase "pseudo bit error measurement signal" is suggested to be changed to "wireless signal". Claim 11 is objected to because of the following informalities: The phrase "first, second, and third bit error measurement signals" is suggested to be changed to "first, second, and third wireless signals". According to the instant specification (see Fig. 6), it is the understanding of the examiner that the

wireless signals are processed by the convolutional encoder, decoder, and pseudo bit error rate circuit. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 13-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 13-15 are directed toward a method of receiving and providing signals, but do not recite a practical application (such as minimizing error) within the body of the claim. MPEP 2106.02 [R-2] states

Claims to processes that do nothing more than solve mathematical problems or manipulate abstract ideas or concepts are complex to analyze and are addressed herein. If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. Gottschalk v. Benson, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.

In practical terms, claims define nonstatutory processes if they:

– consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or

– simply manipulate abstract ideas, e.g., a bid (Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-5, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campanella (U. S. Patent No. 6, 944, 139) in view of Komatsu (U. S. Patent No. 5, 881, 057).

Regarding claim 1, Campanella discloses a receiver (see Fig. 12), comprising:

a channel decoder (see Fig. 12, block 417) select circuit;

a plurality of communication channels (see Fig. 12, early, late) that receives wireless information from channel demodulators (see Fig. 12, blocks 301 and 302, wherein the receivers are the demodulators as shown in Fig. 6 as disclosed in column 12, lines 32-37), the plurality of communication channels in communication with respective channel decoder circuits (see Fig. 6, blocks 209 and 226, wherein both blocks 209 and 226 contain both Viterbi and Reed Solomon decoders as shown in Figs. 5 and 7) the plurality of channel decoder circuits (Fig. 9, blocks 209 and 229) in communication with the channel decoder select circuit (see Fig. 12, block 417);

at least one maximum ratio combiner circuit (see Fig. 12, block 412) that receives the wireless information from the plurality of communication channels, wherein the output of the maximum ratio combiner is communicated to a forward error correction circuit (see Fig. 12, block 250, see column 14, lines 23-27), the output of which is communicated to the channel decoder select circuit (see Fig. 12, block 417).

Campanella does not disclose a pseudo bit error measurement feedback signal communicated to the maximum ratio combiner from one of the plurality of channel decoder circuits.

However, Campanella does disclose providing bit error measurement signals (see column 14, lines 23-36) to the channel decoder select circuit (see Fig. 12, block 417). Komatsu further discloses an error estimator for providing decision (bit) error signals to a controller (see column 4, lines 9-29) which uses the error estimations to provide weights to the maximal ratio combiner (see column 2, lines 58-63). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide the error signals of Campanella as weights to the maximum ratio combiner as disclosed by Komatsu in order to allow the signals to be combined at a maximal ratio using the error signals (see Komatsu, column 4, lines 24-27).

Regarding claim 2, Campanella discloses the channel decoder circuits are Viterbi FEC circuits (see Fig. 5, block 217 and Fig. 7, block 231).

Regarding claim 3, Campanella discloses the channel decoder select circuit (Fig. 12, block 417) is a circuit with selects from two FEC decoders (see Fig. 12, blocks 250).

Regarding claim 4, Campanella discloses the output of the FEC select circuit is communicated to a source decoder to recover a broadcast (audio) signal (see column 11, lines 41-43).

Regarding claim 5, Campanella discloses the wireless information is a satellite signal and a terrestrial signal (see column 12, lines 56-61).

Regarding claim 10, Campanella discloses a receiver (Fig. 10), comprising:

first and second wireless early and late signals provided from respective first and second satellite channel demodulators (see column 13, lines 18-22, demodulators 209 and 226 shown in Fig. 9);

a third wireless signal provided from a terrestrial channel demodulator (see column 13, lines 22-26, demodulator 209 shown in Fig. 9);

first, second, and third wireless signals communicated to a maximum ratio combiner (see Fig. 10, block 312); and

a Reed-Solomon decoder (Fig. 11, block 233, column 14, lines 1-6) that processes the output of the maximum ratio combiner.

Campanella does not disclose first, second, and third, bit error measurement signals corresponding to the first, second, and third wireless signals communicated to the maximum ratio combiner.

However, Campanella does disclose providing bit error measurement signals for the demodulated signals (see column 13, lines 3-8). Komatsu further discloses an error estimator for providing decision (bit) error signals for each detected signal to a controller (see column 4, lines 9-29) which uses the error signals to provide weights to the maximal ratio combiner (see column

2, lines 58-63). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide the error signals of Campanella as weights to the maximum ratio combiner as disclosed by Komatsu in order to allow the signals to be combined at a maximal ratio using the error signals (see Komatsu, column 4, lines 24-27).

Regarding claim 12, Komatsu further discloses the maximum ratio combiner includes a weighting algorithm executed by a weighting (multiplying) the signals (see column 2, lines 58-63). It would have been obvious to include this feature in order to allow the signals to be combined at a maximal ratio using the error signals (see Komatsu, column 4, lines 24-27).

8. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campanella (U. S. Patent No. 6, 944, 139) in view of Komatsu (U. S. Patent No. 5, 881, 057) as applied to claim 10, and in further view of Choi (U. S. Patent No. 5, 937, 016).

Regarding claim 11, Campanella does disclose providing bit error measurement signals for the demodulated signals (see column 13, lines 3-8). Campanella and Komatsu do not disclose the bit error measurement signals are produced by a convolutional decoder, convolutional encoder, an pseudo-bit error rate circuit.

However, Choi discloses obtaining a bit error rate signal by Viterbi decoding, convolutionally encoding the decoded data, and counting the obtained bit error of the encoded signal (see column 6, lines 18-26). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the receiver of Campanella and Komatsu to calculate a bit error rate as disclosed by Choi since Komatsu states error estimations allow signals to be combined at a maximal ratio using the error signals (see Komatsu, column 4, lines 24-27).

Allowable Subject Matter

9. Claims 6-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Curtis Odom
January 30, 2007